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Good morning, Chairman Stevens, Co-Chairman Inouye and members of the Committee. My name is Kyle Dixon. I am a senior fellow with The Progress & Freedom Foundation (PFF), and I direct its Federal Institute for Regulatory Law & Economics. Before joining PFF in 2004, I spent seven years working at the Federal Communications Commission, most recently as special counsel to former Chairman Michael Powell for broadband policy.[*]

Thank you for the opportunity to speak with you about whether Congress should mandate so-called "network neutrality." Such a mandate would constrain the ability of Internet access providers to make private arrangements with other companies that would differentiate among Internet applications, content or devices that rely on broadband network connections to consumers.

This issue confronts Congress with the most crucial regulatory decision for the broadband age. Remedies like a network neutrality mandate may be beneficial where evidence demonstrates that market power has been abused. But the more likely effect of a network neutrality mandate under current competitive conditions would be to reduce consumer welfare by undermining investment and innovation.

I. Consumer Welfare as the Touchstone for Resolving the Network Neutrality Debate

Network neutrality is hotly debated because it is so central to the economy and to our society. The Internet and broadband networks are permitting virtually any service or application -- voice, video or data -- to reach consumers over multi-purpose digital networks. Thus, if Congress decides to regulate how broadband providers work with content and other companies, it will affect the evolution of the converged communications and information technology industries dramatically.

Much ink already has been spilled in this debate, primarily by companies hoping to use the presence or absence of network neutrality mandates to their advantage in commercial negotiations. Yet too often the sound and fury of this

[*] The views expressed here are my own and may not reflect those of The Progress & Freedom Foundation, its Board, or its supporters.

rhetoric signifies little that cuts through to resolve this complex issue. As a former regulator, I recall being faced with this dilemma frequently. I learned then that the best way to resolve issues like this coherently and effectively was to return to first principles.

The touchstone for resolving network neutrality or any other regulatory debate is *consumer welfare.* Specifically, policymakers must balance many (and, inevitably, competing) interests to maximize benefits to consumers in the form of competition, investment and innovation. With this as a starting point, it becomes immediately clear what is known or apparent about the current status quo for consumer welfare, and what questions remain.

II. What We Know: The Status Quo for Consumer Welfare

A. Broadband Networks, Content, Applications and Devices Are All Critical to Maximizing Consumer Welfare

A quick Google search reveals that the Internet often is described as an ecosystem. Like nature, the Internet is highly *interdependent,* involving myriad collaborations among end users, broadband network providers, content and applications developers and so on. The Internet also resembles nature because it is *constantly changing and growing,* adding new users and uses continuously. This interdependence and dynamism account for the many benefits consumers already receive from the Internet, as well as the expectation that these benefits will expand. Conversely, this expansion of consumer benefits depends on maintaining healthy prospects for each of the Internet's components.

B. Content, Applications and Devices Are Thriving on the Broadband Internet

One need only consult advertisements, the news or most anyone with children to assess the vibrancy of the content, applications and device components of the broadband Internet. Consumers use "voice over Internet Protocol" services like Vonage to call cheaply across the country and around the globe. Virtual communities spring up daily as users create and share web logs, instant messages and other media, and as they compete in online video games. Companies fuel American productivity using business-to-business and business-to-consumer applications. Music and video programming lovers increasingly download or "stream" this content to iPods, TiVo boxes and other devices. The evolution of these components of the Internet continues unabated even in the absence of a network neutrality mandate.

C. Broadband Networks, Although Increasingly Ubiquitous and Competitive, Have not Reached Their Full Potential

Despite claims by network neutrality proponents that the market for "last mile" broadband connections is not competitive enough, this aspect of the Internet also shows promising signs:

- The FCC reports that nearly all zip codes are served by at least one broadband provider, and a solid majority is served by several.[1]

- WiFi, WiMax, satellite and other emerging technologies continue to continue to add customers, hoping to compete on a niche or wider basis with existing cable and DSL offerings.[2] Effective spectrum reform would dramatically improve these prospects, thus making such reform a top priority in bringing consumers the benefits of the broadband Internet.

- Industry analysts estimate that most Internet users have defected from "dial-up" Internet access to broadband and that this trend is accelerating.[3]

- Cable modem, DSL and, increasingly, wireless and optical fiber-based networks compete on several bases, including price, speed and technology.[4]

That said, neither the proponents nor opponents of network neutrality want the broadband market to stall at its current level of development. They agree that additional broadband deployment would bring consumers more of the benefits of competition and, hopefully, narrow the gap between the United States and other countries with respect to broadband usage.[5] And although providers continue to make their networks faster, far more of this investment will be needed before high-value uses like streaming video can become commonplace. This, in turn, would initiate a "virtuous cycle" whereby bringing consumers more value would intensify demand for broadband investment.

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[1] Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division, *High-Speed Services for Internet Access: Status as of December 31, 2004* (Ind. An. and Tech. Div., rel. July 2005), at 1-5.
[2] *Id.* at 2.
[3] *See, e.g.,* Bernstein Research Call, *Broadband Update: The Biggest Gains for the Biggest Players* (Oct. 14, 2005), at 1.
[4] *Id.*
[5] Federal Communications Commission, *Availability of Advanced Telecommunications Capability in the United States: Fourth Report to Congress* (Sept. 9, 2004), at 40-43.

III. Narrowing the Network Neutrality Debate

Given the importance and relative health of the broadband network, application, content and device components of the Internet, Congress can narrow the network neutrality debate to the following question:

> Would enacting a network neutrality mandate add to the benefits consumers *already enjoy,* or undermine those benefits?

In the continued absence of demonstrated market power abuses by broadband providers, I contend that network neutrality mandates would do more harm than good.

A. Network Neutrality Mandates Would Not Improve (and Could Worsen) Conditions for Content and Applications Development

The broadband Internet already affords consumers unprecedented freedom in how they obtain, share and manipulate information. Other than a few incidents,[6] broadband providers have not blocked or impaired consumers' use of the content, applications or devices of their choice. These incidents often alleged legitimate concerns about protecting consumers' Internet service quality from erosion by their neighbors' high intensive use of shared network capacity. In any event, these incidents generally were abandoned for business reasons or in response to FCC action.

Even as they experiment with business models to support their expensive network investments, broadband providers are not likely to change course in any way that reduces overall consumer welfare. This results from the current level of competition among broadband networks. There is no single, dominant broadband network provider and none seems likely to emerge in the immediate future. Instead, cable and phone companies vie to expand their respective, substantial market shares and to defend against wireless and other firms who hope to use less established technologies to enter new markets and expand existing footholds.

Nor does it seem likely that broadband providers will extract economically prohibitive terms from other firms any time soon. Companies hoping to earn a return on the billions of dollars they have invested or hope to invest in broadband networks understand that consumers pay a premium over dial-up service so they can access the diverse and exciting content and applications that the Internet offers. Although network owners may wish to bargain with other companies to share the revenues generated by this increased consumer value, they are

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[6] *See, e.g., Madison River LLC and Affiliated Companies,* File No. EB-05-IH-0110, Order, 20 FCC Rcd 4295 (Enf. Bur. 2005).

unlikely to draw hard lines in the sand that risk losing existing or future customers to other networks.

Similarly, no broadband network owner is likely to acquire an "essential facility" without which rivals are effectively barred from the market. Whether a facility denied to a competitor is "essential" for competitive analysis largely turns on whether the competitor is unable, practically or reasonably, to duplicate the essential facility. In most cases, however, at least two firms already compete in the local broadband market, and consumers continue to sign up for additional technologies, such as wireless. Moreover, consumers have accelerated their switch from dial-up to broadband, raising the possibility that network owners entering the market can gain customers without having to entice them away from other broadband providers.

Finally, it seems unlikely that broadband providers can parlay their position in the market as leverage to constrain the market for complementary or "vertical" products, such as content, applications and devices. Leveraging and attempted monopolization theories, at a minimum, require that a company has a monopoly or is likely to be capable of acquiring one. Broadband providers probably will not satisfy this prerequisite anytime soon, for the reasons already stated. And to the extent broadband providers take actions that arguably might fit this theory in the future, attention to the goal of maximizing consumer welfare would need to make sure those actions were not justified as pro-competitive. This seems especially true to the extent providers act to preserve incentives for them (and thus others) to invest in broadband infrastructure.

Note that there is reason to expect that a network neutrality mandate actually might *weaken* the competitive vibrancy of the content, applications and device components of the Internet. For all its flexibility, the Internet cannot be all things to all uses. For example, Internet protocols (e.g., TCP/IP) route packets of digitized data over the Internet anonymously on "first come, first served" and "best effort" bases. This approach has worked well for applications or related devices that are not time-sensitive. This approach works poorly, however, for uses that depend on a steady transfer of data of networks, such as streaming media, online gaming and even voice over IP.[7] An example of this type of application would include Internet delivery of high definition television programming. If Congress enacted a network neutrality mandate, it might prevent network owners from using private networks to work around this inherent shortcoming of the Internet. This, in turn, would discourage the offering of services that consumers want but that are disfavored by the Internet's current architecture.

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[7] Christopher S. Yoo, *Beyond Network Neutrality,* Vanderbilt University Law School, Public Law and Legal Theory (Working Paper No. 05-20), Law & Economics (Working Paper No. 05-16), available at http://ssrn.com/abstract=742404 (visited Feb. 1, 2006), at 5.

By enacting a network neutrality mandate, Congress also might complicate efforts to keep the Internet safe and reliable. As recent events have shown, the phenomenal growth of the Internet also has made it more crowded and vulnerable to security risks, such as viruses and spam. Companies hoping to recoup or expand their investment in broadband networks will be eager to help solve such problems by offering content and applications developers new services that work around the Internet's technical limitations, at least until broader refinements can be made to the global Internet ecosystem. Broadband providers may not be free to offer such services if Congress enacts a network neutrality mandate.

Thus, a network neutrality mandate likely would not improve and could worsen conditions currently faced by developers of content, applications and devices. That some content and applications companies vigorously lobby Congress to enact such a mandate may be explained best by "public choice" theory. Public choice predicts that companies will lobby the government for rules that help them in the marketplace, thereby saving them the trouble of achieving the same results through competition and negotiation.[8] Companies supporting network neutrality may see their greatest advantage in having a rule that frees them from negotiating with broadband providers, but such a rule is not likely to make *consumers* better off. Broadband providers already face strong pressures to add as many customers as possible, both to keep customers from signing up with competitors and to recoup providers' significant investments in network infrastructure. The facts speak for themselves; there is no persuasive evidence that broadband providers systematically have prevented or discouraged consumers from using any legal content, applications or devices. As such, Congress can accord little weight to companies' pleas for help in avoiding commercial negotiations as irrelevant to the main goal of regulation: maximizing consumer welfare.

B. A Network Neutrality Mandate Likely Would Undermine Investment and Innovation in Broadband Networks

Most significantly, a network neutrality mandate would discourage investment and innovation in broadband networks.

1. Ambiguities regarding what "network neutrality" actually means would burden and delay new broadband services and networks.

Perhaps the simplest definition of "network neutrality" would be "nondiscrimination," i.e., a requirement that broadband network owners serve all potential customers equally. As I have suggested, this kind of mandate could

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[8] *See* James M. Buchanan, *Public Choice: Politics Without Romance,* Policy Quarterly (Spring 2003), available at http://www.cis.org.au/Policy/spr03/polspr03-2.htm (visited Feb. 1, 2006).

preclude broadband providers from offering services that address the Internet's inherent reliability and security limitations and thereby make it more difficult to offer or purchase valuable new Internet services.

A naked nondiscrimination requirement also could hamstring efforts by content and applications providers to develop sustainable business models. It is only very recently that companies began to trade the "virtual" profits that inflated the Internet bubble for real profits, largely based on targeted Internet advertisements. I suspect that even some proponents of regulation in this area would not want Congress to bar broadband providers from agreeing to feature content or links on consumers' Internet "home pages" or, as some companies have done, agree to make Yahoo!, AOL or others preferred Internet service providers on their networks.[9] But these arrangements, which seem to benefit consumers, are difficult to square with the concept of nondiscrimination.

Further, more sophisticated notions of network neutrality -- notions that allow companies to improve reliability or security, or develop pro-competitive business models -- are likely to be more ambiguous than nondiscrimination. This added ambiguity would invite costly litigation before the FCC or the courts as to what Congress meant when it enacted a particular network neutrality mandate. The challenge of writing nuanced network neutrality rules also could result in unanticipated consequences.

2. Enacting a network neutrality mandate would push consumers and the industry down a "slippery slope" towards more burdensome regulation.

Fears that a network neutrality mandate would usher in subsequent regulation are not merely speculative; they are supported by the FCC's experience in regulating "enhanced" services and attachments to the narrowband, telephone network in its *Computer Inquiry* and *Part 68* proceedings.

The *Computer Inquiry* requirements were adopted over many years beginning in the 1970s and, at base, were designed to allow telephone companies to participate in the emerging data processing industry on the condition that they afford competing "enhanced" or information service providers (e.g., third-party voicemail providers) the same access to the transmission capability of the phone network. Phone companies had to file the terms and conditions of these "basic" services with tariff reviewers at the FCC, subject to regulation that the prices for these services be "just and reasonable." The *Computer Inquiry* spawned a vast maze of requirements so Byzantine that few attorneys at the FCC or elsewhere claimed to understand it fully. Many of the requirements were rejected in a series of court appeals.

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[9] *See, e.g.,* Burt Helm, *SBC's Gambit, Yahoo's Tidy Gain,* BusinessWeek Online (June 2, 2005), available at http://www.businessweek.com/technology/content/jun2005 /tc2005062_8479_tc024.htm (visited Feb. 1, 2006).

Not surprisingly, the FCC last year honored Congress' demand that it eliminate barriers to broadband investment by affording DSL providers the flexibility to opt out of the *Computer Inquiry* requirements along with other aspects of "common carrier" regulation.[10] Likewise, in 2000, the FCC eliminated 125 pages of Part 68 rules governing the attachment of devices to the telephone network, that time responding to Congress' mandate that the agency eliminate unnecessary, and thus burdensome, regulation.[11]

The risk that a network neutrality mandate would lead to further regulation is illustrated more generally by the FCC's implementation of the provisions in the Telecommunications Act of 1996 intended to open local telephone networks to competition. As that experience suggests, mandates that one company share its network with competitors almost always lead competitors to call for more regulation regarding how that sharing is done, especially with respect to price.[12] Brushing aside any incentives network owners have to carry as much traffic over their networks as possible (to spread heavy fixed costs as widely as possible), competitors' argument is that it does no good to mandate access to a network if its owner can request price or other terms that make the access uneconomical for competitors.

By analogy to the broadband context, it seems likely that any network neutrality mandate that Congress adopts (and that survives implementation and judicial review) will be met with calls for additional regulation of the price and other terms of this "neutral" access. This additional regulation would heighten the burden imposed by a network neutrality mandate itself, thereby further discouraging investment in broadband networks.

3. A network neutrality mandate would undermine broadband deployment by deterring providers from addressing Internet reliability and security concerns.

I mentioned earlier the benefits of allowing broadband providers to develop services to address some of the Internet's inherent technical limitations. The flipside of the value that those services could offer content and applications developers (and, ultimately, consumers) is that such services create new revenue opportunities for network owners. These revenues then can be used to fund the network upgrades and expansions that are necessary to support wider availability of valuable, bandwidth-intensive services, such as video and tele-medicine. A network neutrality mandate risks blocking this flow of money, thereby reducing consumer welfare.

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[10] Federal Communications Commission, *Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities,* CC Docket Nos. 02-33 *et al.,* Report and Order and Notice of Proposed Rulemaking (rel. Sept. 23, 2005), at 40-46.

[11] Federal Communications Commission, *FCC Privatizes Standard-Setting and Certification Process for Telephone Equipment,* CC Docket No. 99-216, News Release (rel. Nov. 9, 2000).

[12] *See generally* Federal Communications Commission, *Unbundled Access to Network Elements,* WC Docket Nos. 04-313 *et al.,* Order on Remand (rel. Feb 4, 2005), at 1-5.

In sum, the most significant likely effect of a network neutrality mandate would be to weaken investment and innovation in broadband networks when they have not yet reached their full potential. Also, it is worth noting that a network neutrality mandate that denied broadband providers the value of the billions of dollars they have invested in their networks could raise issues as to whether the mandate amounted to an unconstitutional "taking" of property. Taken together with the likelihood that such mandates (at best) will merely free content and applications developers from having to negotiate with broadband providers, this explains why Congress need not enact a network neutrality to promote consumer welfare at this time.

IV. The Market Power Alternative: A Superior Solution to Protecting Consumer Welfare

If Congress decides it must assume the risk of harm to which an across-the-board network neutrality mandate would subject the Internet ecosystem, it should consider alternatives that reserve such mandates for situations in which they are needed to remedy abuses of market power.

Arguments in favor of network neutrality rely largely on the assumption that broadband providers have market power that they will use to deny consumers the freedom to use the content, applications and devices of their choice. Leave aside, for the moment, broadband providers' incentives to maximize the value of their networks by keeping the floodgates of content and applications open. It is clear that a provider cannot extract "monopoly rents" (as opposed to market-constrained fees) *unless* the provider has market power. Thus, imposing network neutrality only where a broadband provider has abused market power should limit that remedy to situations in which the provider truly is harming consumer welfare.

There are likely multiple options for limiting network neutrality remedies to abuses of market power. One option would be for Congress to rely on traditional antitrust enforcement; for example, in the face of demonstrable evidence that it had abused market power, a broadband provider could avoid an antitrust suit by agreeing to "neutrality" remedies.

Alternatively, Congress could specify a competitive standard according to which the FCC could identify and remedy market power abuses. This tracks the approaches recently proposed by Senator DeMint in S.2113, and by the Progress & Freedom Foundation in our Digital Age Communications Act project.[13] The Foundation developed its proposal in conjunction with dozens of legal, engineering and economic scholars and practitioners representing a range

[13] Randolph J. May & James B. Speta, Co-Chairs, *Digital Age Communications Act: Proposal of the Regulatory Framework Working Group (Release 1.0),* The Progress & Freedom Foundation (June 2005).

of viewpoints. Nonetheless, these scholars share a passion to updating regulation to comport with the evolving demands of digital technology.

However Congress crafts a "market power alternative" to network neutrality concerns, it should satisfy at least two prerequisites. First, the alternative should be *narrowly targeted* to specific instances of market power, in terms of both the geographic scope and behavioral requirements of the remedy.

Second, the alternative should incorporate a *rigorous competitive standard and evidentiary showing* to ensure that neutrality mandates are imposed only to remedy demonstrable cases of market power abuse. A competitive standard that fails to satisfy these prerequisites likewise will fail to avoid many of the potential risks to consumer welfare that "one-size-fits-all" network neutrality mandates pose.

V. Conclusion

The debate over whether to enact a "network neutrality" mandate is no mere regulatory squabble; it confronts Congress with momentous decisions that will affect generations of Americans. We know that all the components of the broadband Internet -- from networks to applications, content and devices -- are critical to maximizing consumer welfare. In order to further this central goal of communications regulation, I urge Congress to remain cautious about imposing network a neutrality mandate at this early stage in the development of the broadband Internet. Imposing "neutrality" where it is not necessary to remedy abuses of market power could be far more damaging than endorsing a "solution in search of a problem." Doing so could make a network neutrality mandate *itself* the problem.

I thank the Committee for this opportunity, and I ask that my written remarks be made part of the record. I am happy to answer any questions you may have.